August 11, 2020

U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

DOT-SP 11215
(TWENTY-FIRST REVISION)

EXPIRATION DATE: 2022-11-30

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Orbital Sciences LLC
Dulles, VA

2. PURPOSE AND LIMITATION:

a. This special permit authorizes the transportation in commerce of certain hazardous materials listed in paragraph 6 of this special permit, contained in a Standard Pegasus or a Pegasus XL (either model hereafter referred to as "Pegasus") three or four stage winged solid fuel rocket in captive carry configuration, or a Raytheon vehicle, secured beneath an L-1011 aircraft. The special permit covers launch operations and non-launch operations associated with vehicle deployment with or without a spacecraft. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.

b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.

c. Party status will not be granted to this special permit.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 172.102 Special Provision 109 in that the rocket motor may be transported in the propulsive state; the shipping papers, marking, labeling and placarding requirements in 49 CFR Part 172 Subpart C, D,

E, and F; § 173.62 and Part 173 Subparts E and G in that non-DOT specification packaging is not authorized, except as specified herein, and § 175.75 in that alternative stowage of the satellite delivery system (i.e. Pegasus Rocket) is authorized as required external to the FAA Certified 125 L1011 aircraft.

5. BASIS: This special permit is based on the application of Orbital Sciences Corporation, dated April 2, 2020, submitted in accordance with § 107.105 and the public preceding thereon and additional information dated August 2, 2020 submitted by Orbital Sciences LLC.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description					
Proper Shipping Name	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**	**L-1011 / Pegasus**	**Raytheon Vehicle**
Cartridge Power Device	1.4B	UN0276	N/A	Y	
Charges, Shaped, Flexible, Linear	1.4C	UN00288	N/A	Y	Y
Charges, Shaped, Flexible. Linear	1.3C	UN0237	N/A	Y	
Charges, shaped, without detonator	1.1D	UN0059	N/A		Y
Cutters, Cable, Explosive	1.4S	UN0070	N/A	Y	Y
Detonators for Ammunition	1.4B	UN0365	N/A	Y	
Detonators, Electric	1.4D	UN0255	N/A	Y	
Flammable Solids, Organics, NOS	4.1	UN1325	II	Y	
Fuzes, Detonating	1.4S	UN0367	N/A	Y	
Fuzes, Detonating	1.4D	UN0410	N/A		Y

Hazardous Materials Description					
Proper Shipping Name	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**	**L-1011 / Pegasus**	**Raytheon Vehicle**
Hydrazine (Anhydrous)	8	UN2029	II	Y	Y
Hydrogen (Refrigerated Liquid)	2.1	UN1966	N/A		Y
Igniters	1.3G	UN0315	N/A	Y	
Igniters	1.4G	UN0325	N/A	Y	Y
Linear Shape Charge (FTR)	1.1D	UN0408	N/A		Y
Lithium Batteries (Contained in Equipment)	9	UN3091	II		Y
Krypton, compressed	2.2	UN1056	N/A	Y	Y
Nitrogen (Compressed)	2.2	UN1066	N/A	Y	
Release Devices (Explosive)	1.4S	UN0173	N/A		Y
Rocket Motors (88% HTPB)	1.3C	UN0186	N/A	Y	
Rocket, with Bursting Charge	1.2E	UN0182	N/A	Y	
Safe and Arm Device	1.4S	UN0349	N/A	Y	
Thermal Battery (Contained in Launch Vehicle)	4.1C	UN3178	II	Y	

7. SAFETY CONTROL MEASURES:

a. PACKAGING: The rocket configuration containing the hazardous materials will be secured beneath an L-1011 aircraft and consists of either:

(1) A Pegasus three or four-stage winged solid fuel launch vehicle designed and constructed to lift a spacecraft payload also containing hazardous materials into earth orbit, or

(2) A Raytheon designed and built vehicle constructed for US Government flight test, containing hazardous materials.

b. OPERATIONAL CONTROLS:

(1) Pegasus Vehicle - All safety aspects of the loading and transport of the Pegasus launch vehicle must be carried out in accordance with procedures described in "PEGASUS XL Accident Risk Assessment Report" (TD-0006 Rev C), dated April 15, 1998 on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD). All safety aspects of the loading and transport of the spacecraft payload must be carried out in accordance with procedures approved by the US government range safety organization that has jurisdiction over the property on which these activities are performed. Handling of the Pegasus before and after being attached to the L-1011 must be in accordance with the ground safety procedures of the launch site facility. All captive carry flight operations must be carried out in accordance with procedures described in the "L-1011 Orbital Carrier Aircraft Accident Risk Assessment Report" (TD-0202 Rev B), dated July 19, 2000.

(2) Raytheon Vehicle - All safety aspects of the loading and transport of the Raytheon vehicle must be carried out in accordance with the procedures described in Raytheon's "Test Safety Plan", Document #979106, and "L-1011 AUR Loading and unloading Procedures", document # 984455. All safety aspects of the loading and transport of the Raytheon vehicle must be carried out in accordance with procedures approved by the US Government range safety organization that has jurisdiction over the property on which these activities are performed. Handling of the Raytheon vehicle before and after being attached to the L-1011 must be in accordance with the ground safety procedures of the launch site facility. All captive carry flight operations must be carried out in accordance with procedures described in the L-1011 Orbital Carrier

Aircraft Risk Assessment Report TD-0202 Rev-B, dated July 19, 2000.

(3) Lock-outs or safe-and-arm inhibits for stage one, two and three rocket motors, fin solid rocket motors, all ordnance devices and release of the Pegasus or Raytheon vehicle from the L-1011 must be according to applicable procedures in the ARARs described in paragraph 7(b)(i) above.

(4) All Pegasus captive carry operations will originate from Vandenberg AFB; Wallops Flight Facility; Patrick AFB; Cape Canaveral AS; Kennedy Space Center; or the Bucholz Army Air Facility, United States Army Kwajalein Atoll, Marshall Islands. To the maximum extent possible, after departing these facilities airspace, in-flight operations involving the L-1011/Pegasus must be conducted over the ocean. Alternate abort landing sites for Vandenberg AFB are Edwards AFB and the Mojave Airport/Spaceport.

(5) Captive carry ferry operations between Vandenberg AFB and Reagan Test Site will stop at Kailua-Kona International, Hawaii or Honolulu International for crew rest and refueling. In the event a return trip is necessary from Kwajalein to Vandenberg AFB, the aircraft may require an intermediate fuel stop at either Wake, Johnston or Midway Island. To the degree possible, takeoff and landing of the L-1011/Pegasus will be scheduled to avoid interaction with commercial traffic and will minimize over-flight of populated areas. The L-1011/Pegasus will be parked away from the terminal at Kailua-Kona International, Hawaii or Honolulu International. Orbital Sciences Corporation will contact appropriate airport personnel before a mission begins to identify any other special safety procedures that may be applicable to the flight.

(6) Raytheon captive carry flights will depart from and return to one of the following locations: Edwards AFB, PT Mugu NAWC or Tucson International Airport. To the maximum extent possible, after departing these facilities airspace, in-flight operations involving the Raytheon vehicle must be conducted over the ocean. Takeoff and landing of the L-1011/Raytheon vehicle will be scheduled to avoid other traffic or populated areas. The L1011/Raytheon vehicle will be parked as assigned and away from other airfield operations. Orbital and

the Raytheon test team will coordinate with airfield personnel before a mission begins to identify any other special safety procedures that may be applicable to the flight.

(7) All U.S. captive carry launch operations must be carried out under control of the U.S. government range having jurisdiction and in accordance with affected U.S. government range safety procedures. All flight paths must be cleared by the Federal Aviation Administration (FAA).

(8) No person other than required flight crew members, required FAA personnel, OSC personnel or a representative of OSC so designated in writing, or a person necessary for handling the Pegasus may be carried on the L-1011 while engaged in captive carry operations.

(9) Emergency Procedures:

(i) In the event of an emergency landing or mission abort resulting in return flight of the L-1011/Pegasus or Raytheon vehicle, landing must occur at an airport listed in paragraph 7.b.(3) or at an airport designated by the FAA.

(ii) The return flight path of an L-1011 with an unlaunched Pegasus or Raytheon vehicle must be over water to the maximum extent possible. Any portion of the final segment of the flight path over land must be away from populated areas.

(iii) When the Pegasus is equipped with hydrazine, liquid propellant, and a leak or unintentional release occurs, OSC emergency procedures must be followed.

(iv) Appropriate emergency response personnel at any airport where the L-1011/Pegasus or Raytheon vehicle may land must have written notification of the hazardous materials within the Pegasus and of the hazards associated with a landing of the L-1011/Pegasus aircraft in order to assure proper response to an emergency is possible. Such notification must be made before a mission begins.

(10) If release of the Pegasus or Raytheon vehicle occurs with intent to destroy the vehicle such release must occur over water in an area known to minimize danger to watercraft below and all aircraft in event of explosion, release of hazardous material, or fragmentation hazard resulting from detonation in the air.

(11) Hazardous materials on board the Pegasus or Raytheon vehicle may not exceed quantities specified in Orbital Sciences' application on file with the Associate Administrator for Hazardous Materials Safety.

(12) Captive carry non-launch operations associated with transport of the L-1011/Pegasus or Raytheon vehicle in U.S. territory must be in accordance with flight plans coordinated with and approved by the FAA.

8. SPECIAL PROVISIONS:

a. A current copy of this special permit must be maintained at the launch facility, the facility from which a ferrying operation originates, and at any airport where the L-1011/Pegasus/Raytheon vehicle may land.

b. Orbital Sciences LLC must maintain all records, data, and other material needed to verify that activities carried out under this special permit conform to representations made in the application for this special permit and additional information submitted in accordance with this special permit. In case of an incident involving the packaging and aircraft identified in this special permit, Orbital Sciences Corporation must preserve all records, data, and other material relating to the vehicle, its payload, and operations associated with this launch.

c. Orbital Sciences LLC must provide descriptions of all design changes impacting on how hazardous materials are stored, pressurized, or used and an analysis of how these changes affect previously completed accident risk assessments to the Associate Administrator for Hazardous Materials Safety as soon as practicable, but not later than 30 days prior to ferrying or launch operations.

d. Orbital Sciences LLC must submit changes to flight paths along with a corresponding risk analysis performed in the same manner as that done in earlier special permit applications to the Associate Administrator for Hazardous

Materials Safety as soon as practicable, but not later than 30 days prior to ferrying or launch operations.

e. The shipping papers, marking, labeling, and placarding requirements in 49 CFR Part 172 Subpart C, D, E, and F are waived.

9. MODES OF TRANSPORTATION AUTHORIZED: L-1011 cargo aircraft only, owned by Orbital Sciences LLC and specially modified and designed to carry the Pegasus and Raytheon launch vehicles.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard the L-1011 aircraft used to transport the Pegasus or Raytheon vehicle.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous

materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS:

a. Orbital Sciences LLC is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this special permit.)

b. Orbital Sciences LLC must report any failure of, or deviation from, approved safety, flight, and launch procedure or failure to release the Pegasus Launch Vehicle to the Associate Administrator for Hazardous Materials Safety, as soon as practicable.

Issued in Washington, D.C.:

for William Schoonover
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: KFWong/BS/TD